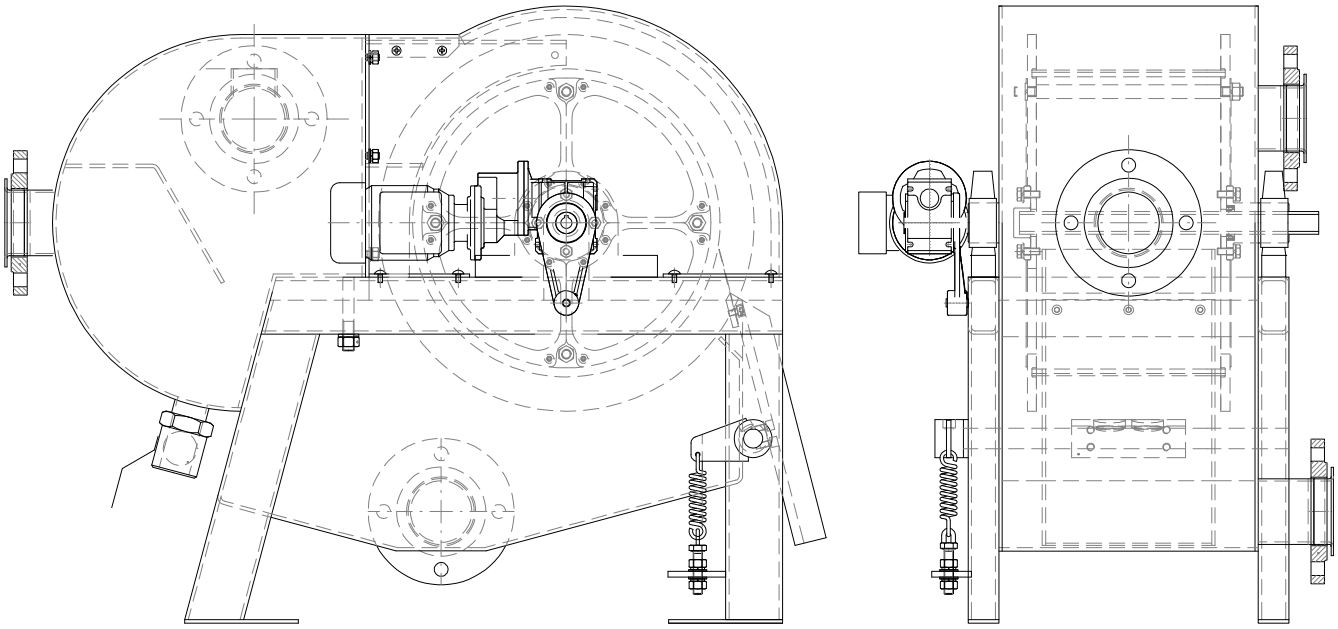
TECHNICAL AND DELIVERY CONDITIONS

AND INSTRUCTION MANUAL

ROTARY SCREEN



EK Hodonín, s.r.o., Stavební 4058/3, 695 01 Hodonín, CZECH REPUBLIC

www.ekhodonin.cz

CONTENTS

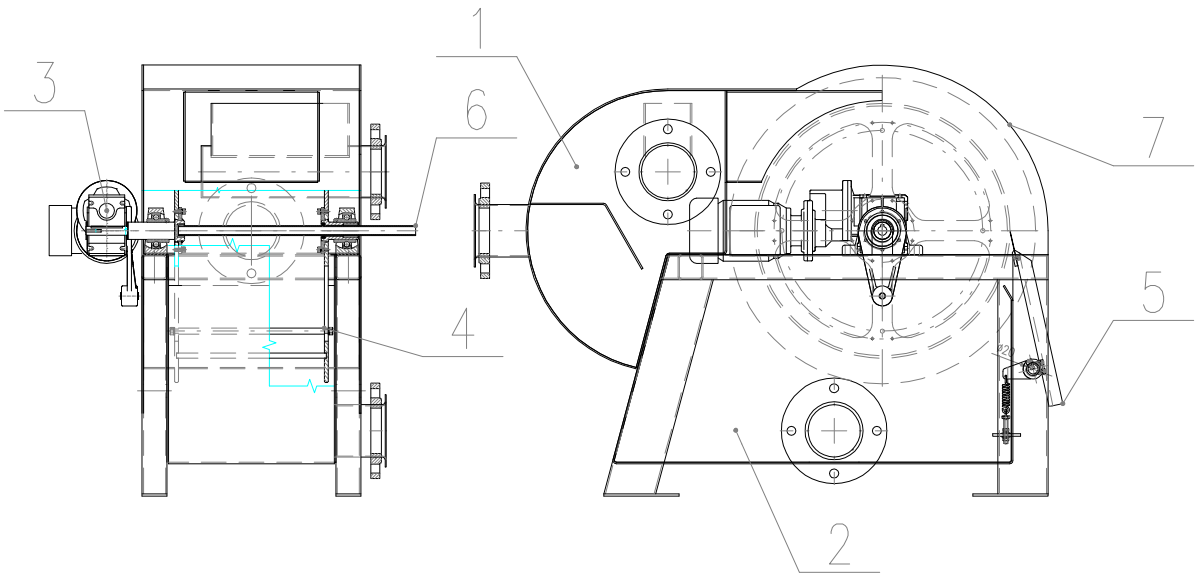
1. TERMINOLOGY

Equipment serving for removal of mechanical impurities from wastewaters except of fibrous matters like feathers and matters heavier than water. Its characteristic part is slowly rotating cylindrical sieve that brings floating particles (screenings) on a wiper blade and into a container for disposal.

Cylindrical screen	- a cylinder created by winding a wire of trapezoidal cross-section, there is a slot between individual threads
Rackings	- particulate pollution which is carried by waste water and consequently captured with the rotating screen
Screed	- steel plate removing solid particles of contamination
Wiper blade	- the part of the screed that touches the revolving cylindrical screen at a sharp angle and wipes solid particles of contamination away
Separation	- trapping and removal

Meaning of the other terms follows from the text.

2. DESCRIPTION OF THE DEVICE

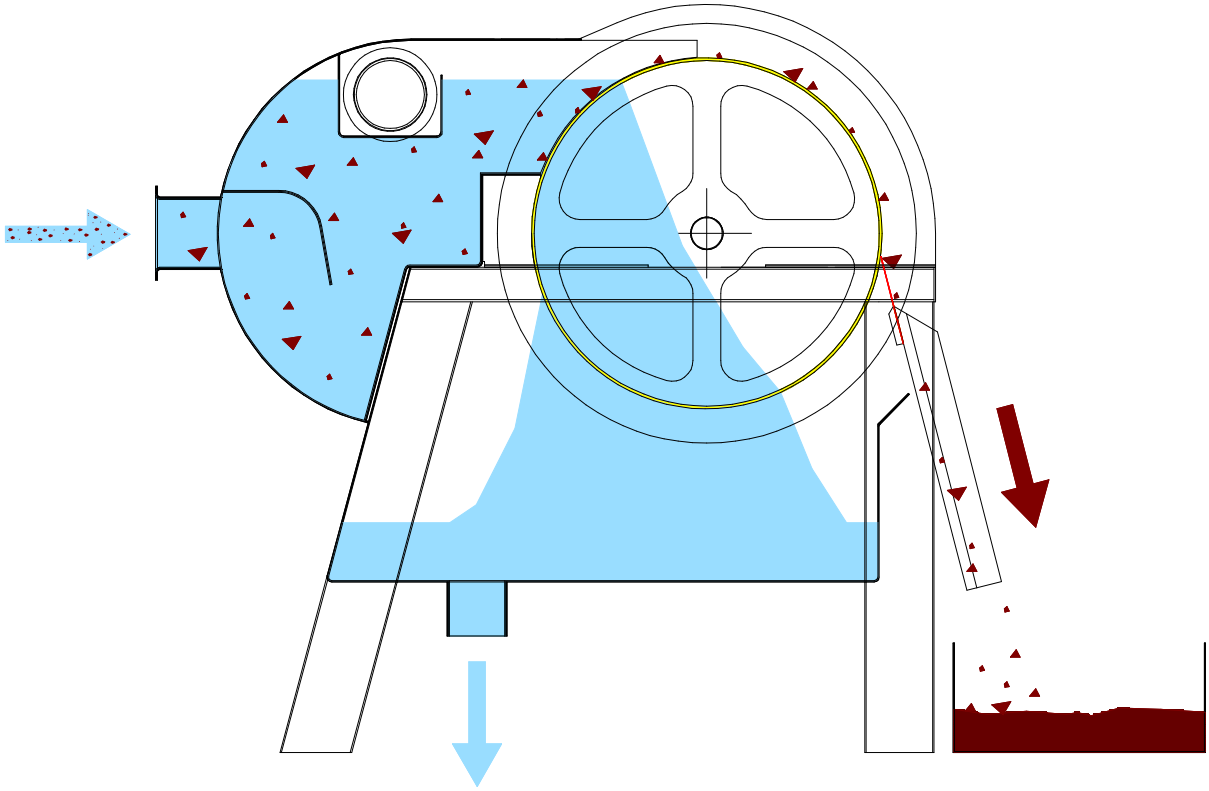


Supply tank (1)	captures the stream of supplied water and allows uniform flow on the revolving cylindrical screen, it is provided with an overflow
Discharge tank (2)	captures water deprived of solid particles of contamination and allows its discharge through piping. Four feet on which the complete device is erected form its parts
Driving mechanism (3)	electric gearbox NORD SK - engine: voltage 230/400V; 50 Hz speed n1 1/min. 1335 - transmission: transfer ratio i = 150; output speed 1/min 8.8
Cylindrical screen (4)	see the terminology, it is provided with faces with screwed pins for seating in bearing bodies
Wiper blade (5)	see the terminology
Spraying device (6)	tube in the axis of the cylindrical screen that provides water flushing slots
Guard (7)	frame with plexiglass

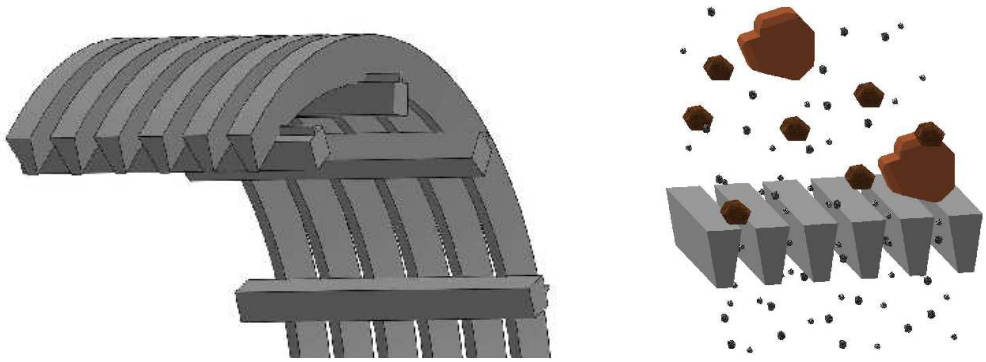
The entire device is normally made of stainless steel DIN W. Nr 1.4301 (AISI 304). It is up to the customer to decide whether this material is suitable for the particular application. There is also the possibility of using another higher quality material according to customer request.

3. PRINCIPLE OF ROTARY SCREEN FUNCTION

Polluted water is pumped or flows gravitationally into the supply tank of the rotary screen. The water flow in the supply tank calms. The water level in the supply tank reaches the surface of the revolving cylindrical screen. Water flows through the cylindrical screen and drops into the discharge tank. It flows from here through piping outside the rotary screen (into a sump or sewerage system). Impurities which size exceeds the width of the slot remain on the surface of the cylindrical screen and are wiped off with the wiper blade that touches the screen at a sharp angle in the opposite direction to the rotation of the cylinder. Rackings slide on the screed and drop into a container or on a screw conveyor. The thrust force of the screed is produced by the action of springs, the force of the springs can be adjusted using adjusting screws. The supply tank is equipped with an overflow that in case of a large inflow of the waste water removes excess water back into the pumping sump.



detail of the screen:



4. USE

The rotary screen is used to separate mechanical impurities from industrial wastewater. It can be applied above all in the meat, fish processing and canning industries, etc. In a wider context, the rotary screen can be used wherever it is necessary to remove a mechanical pollution from a liquid medium. The rotary screen is not suitable for separation of a mechanical pollution that quickly sediments (gravel, metal particles, glass) and fibrous substances. The rotary screen is not suitable for separation of a mechanical pollution that quickly sediments (gravel, metal particles, glass) and fibrous substances.

Recommendation: *Atypical or in any way problematic application of the rotary screen should always be consulted with the manufacturer.*

5. TECHNICAL PARAMETERS

Company EK Hodonín, s.r.o. supplies rotary screens to order in various designs. Basic technical specifications are expressed as the type of rotary screen.

The general scheme of the type: ROSI D - L - W

ROSI *rotary screen,* ***D*** *screen cylinder diameter,* ***L*** *screen cylinder length,* ***W*** *slot width*

Type	Screen diameter (mm)	Screen length (mm)	Dimensions: length x width x height (mm)	Flow rate m^3/h slot (mm)					
				0.25	0.50	0.75	1.00	1.50	2.00
ROSI 270-500	270	500	700 x 880 x 540 (weight about 130 kg)	2.5	6.5	8	10	14.5	20
ROSI 500-300	500	300	1280 x 700 x 1100 (weight about 220 kg)	8	13	19	24	30	33
ROSI 500-600	500	600	1280 x 1048 x 1100 (weight about 230 kg)	14	24	33	42	52	67
ROSI 500-900	500	900	1280 x 1380 x 1100 (weight about 280 kg)	28	50	70	92	121	136
ROSI 500-1200	500	1200	1280 x 1570 x 1100 (weight about 350 kg)	40	68	96	127	167	187
ROSI 500-1500	500	1500	1280 x 1870 x 1100 (weight about 400 kg)	50	86	124	163	213	238
ROSI 914-2000	914	2000	2300 x 2500 x 1650 (weight about 800 kg)	108	188	275	366	485	549
ROSI 914-2000 + SCREW CONVEYOR	914	2000	2300 x 2600 x 2150 (weight about 1000 kg) 500 x 2600 x 550	108	188	275	366	485	549

- The values of the rotary screen output represent maximum flow of clean water.
- Actual output of the rotary screen depends on a character and concentration of the impurities in wastewater.

6. INSPECTION AND TESTING

Before assembling the rotary screen all components are checked as to workmanship quality and precision. After assembling the rotary screen workmanship quality is checked and tightness of welds for leakage is tested. Functional test is done and the speed of rotation of the cylindrical screen is tested, the wiper blade is checked whether it hitting hard on the screen throughout its entire length and for full turn of the cylinder. The certificate of product quality is a part of accompanying documentation. In case that the manufacturer provides installation of the rotary screen, the manufacturer will also inspect the electrical installation. The report of inspection of electrical installation is a part of accompanying documentation.

7. ACCEPTANCE AND DELIVERY

The rotary screen is supplied completely assembled. Part of the delivery of ROSI can be (but need not) also supply electric switchboard (it depends on the order of the customer). The manufacturer bears the responsibility for the quality and completeness of the rotary screen. The acceptance of the product is performed by the customer both as to quality and completeness.

Accompanying documentation:
- Technical and delivery conditions and instruction manual
- Instructions for operation and maintenance of the electric gearbox
- Switchboard overview scheme (if it is included in the shipment)
- Certificate of product quality and completeness
- Declaration of conformity

A record is made in which both parties confirm delivery and acceptance of the rotary screen including the accompanying documentation.

8. TRANSPORT AND STORAGE

Transport of the rotary screen is usually provided by the customer if not agreed otherwise. Any other handling ensures the customer. Storage at the customer must be performed so as to ensure protection against mechanical damage and weather effects. Responsibility for the rotary screen during storage borne by the customer.

9. GUARANTEE

If not purchase contract provides otherwise, the manufacturer provides guarantee duration of 12 months after delivery of the rotary screen. This date is marked on the delivery note. The customer has the right to free repair or replacement of defective parts that the manufacturer recognized as defective. The manufacturer does not warrant for damages resulting from the improper handling or storage by the customer. The guarantee also does not cover damage caused by improper installation not made by the supplier.
The guarantee also does not cover:

- the cost of maintenance paid by the customer in accordance with manufacturer´s recommendations
- damage caused by using the screen on other kind or larger amount of wastewater than agreed in the order (or manufacturer´s offer)
- components that have been rebuilt or otherwise modified after delivery or consequences (damage, premature wear and tear, deterioration, etc.) of this rebuilding or modifications
- cost of replacement of parts subject to ordinary wearing according to way of use (for example wiper blade)
- damage caused by improper maintenance and operation
- damage caused by external influences such as fire, floods, earthquakes, war, etc.
- indirect consequences of any defects (loss of profit)

Surface treatment is done by acid pickling and passivation that guarantees the quality passive layer on the entire surface of the device. The manufacturer is not responsible for defects caused by incorrect choice of material for the specific application or damage to the the passive layer both mechanical and chemical. The passive layer is negatively affected mainly by chlorin, dissolved salt and pH changes (correct is 7.2 to 7.6).

10. INSTALLATION

Installation is made by the supplier only on the basis of the order and a subsequent contract for work. Installation is performed by the supplier on the basis of a project. At customer's request the supplier can mediate any work associated with the project. If the customer decides to install the rotary screen by himself, we recommend consulting the general conception with the supplier.

Guidelines for installation of the rotary screen:

- The device can operate reliably only if it is protected against weather effects and the temperature of environment does not drop below 8 °C.
- The device is usually mounted on an elevated construction so as to allow removal of raked dirt particles into a container or on a conveyor. The construction has to ensure stable horizontal position of the rotary screen.
- A valve should be installed in the pipe for supply of wastewater in order to allow control of the quantity of wastewater supplied.
- It is recommended to install a service platform.

- The rotary screen washing system is connected to a water supply 0.6 Mpa. It is necessary to spray warm water (70 °C) where clogging slots with fat can occur.
- It is necessary to install a valve in the supply pipe for spraying to allow control of the quantity of sprayed water.

11. OPERATING INSTRUCTIONS

Checking of the rotary screen before commissioning:

- The rotary screen should be anchored with screws to the floor or a base structure.
- Wiper blade hitting hard on the screen throughout its entire length. The thrust force of the screed is produced by the action of springs with adjustable screws.
- The rotary screen is connected to the supply, discharge and overflow pipes and spraying system.
- The valve on the supply pipe is closed.
- No foreign objects should be in screw conveyor (if it equipped).
- Control switchboard is energized and initial revision was done.

Commissioning:

- Start the rotary screen by turning the switch in the “ON” position (check the direction of rotation).
- Turn on the filling pump.
- Open the valve in the supply pipe slowly so as the level of wastewater flowing into the supply tank would be stabilized about 10 mm under the edge of overflow.
- If wastewater contains fat, it is necessary to switch on the system of spraying with hot water or steam. If immediate clogging of the slots does not occur, it is suitable to actuate spraying in a time interval the length of which is to be determined only on the basis of operational experience.

Checking after commissioning:

- Function of the rotary screen is checked, i.e. whether mechanical dirt that sticks on the surface of the cylindrical screen is wiped off, quiet and smooth running.
- Optimal adjustment of supply, whether wastewater does not flow through the overflow.
- Whether the slots do not tend to be clogged.

The rotary screen can be in operation continuously, i.e. even if the filling pump is turned off and contaminated wastewater is not supplied in the supply tank. With respect to a slow motion of rotation of the cylindrical screen, wear of the wiper blade is small in such a case.

Terminating the operation of the rotary screen:

- Turn off filling pump.
- Close the valve on the supply pipe.
- With the spray turned on, let the rotary screen run until the slots of the cylindrical screen are flushed completely.
- Check if in conveyor inputs and outputs are not dirt and residues
- Stop the rotary screen by turning the switch in the “OFF” position.

If the rotary screen is supplied with electric switchboard, the operator should follow the instructions that are a part of the supply. If the rotary screen is supplied without electric switchboard it must be connected to another (e.g. technological) switchboard which will allow similar functions as the switchboard by the manufacturer. In this case, the control method is described in details in the technical report for the electric switchboard.

12. MAINTENANCE OF THE ROTARY SCREEN

The operator makes visual checks of function of the rotary screen every two hours at least (depending on the experience of operation).

The operator should check above all:

- Proper operation of the rotary screen, clean slots
- The condition of the wiper blade. It must be replaced immediately if it is worn and, as a result, it does not hitting hard on the screen throughout its entire length on the cylindrical screen (use only wiper blade supplied by the manufacturer).
- Whether wastewater does not flow from the supply tank through the overflow. If so, the valve on the supply pipe should be turned down and the slots cleaned.
- Tightness of flange and welded connections.
- Efficiency of the spraying system.

Maintenance:

- The check of clarity and throughput screen slots is needed each day after the shift. In case they are not perfectly clear, it is necessary to use pressure or (in applications where is clogging slots with fat) steam cleaner to remove all dirt and sediments.
- Launch settled sludge from the supply tank with desludging valve each day after the shift to prevent its homogenization.
- Carefully clean and flush the interior of the screen with pressure or (in applications where is clogging slots with fat) steam cleaner and remove all dirt and sediments at least once a month (according to the operating load).
- Lubricate the bearing housing once after each three months with XINTEX SUPER IMPACT grease (highly durable insoluble lubricant).

- Maintenance of the gearbox is done in according to the manufacturer´s instructions. A copy of the maintenance manual is a part of the accompanying documentation for the rotary screen.

Safety instructions:

- The device can be operated only if the sieve cover is set on.
- It is forbidden to carry out any action on the device if it is in operation or if there is no guarantee that it will not be switched on.
- There is a risk of capturing and pulled in parts of the body into the device.
- It is also forbidden to insert parts of the body, tools or equipment into the place of the drum sieve during operation.

Note: The rotary screen consists of several parts that are screwed to each other. The complete device can be disassembled in a relatively simple way. With respect to the fact that all contact surfaces are sealed and the cylindrical screen is centred carefully at manufacture, the manufacturer recommends the user to make use of the supplier's service if such disassembly is required. Contact surfaces are sealed with SILICONE ACETATE, in case that continuous layer of the material was breached during disassembling it is necessary to restore it before reassembling.

13. SERVICE

Company EK Hodonín, s.r.o. provides both guarantee and after-guarantee service. The after-guarantee service has to be ordered in writing. The service is done in the manufacturer´s factory. In case of requirement service on the place of operation transportation is paid by the purchaser.
The manufacturer supplies any spare parts to special order.

The manufacturer reserves the right to change these technical and delivery conditions.

14. CONTACT

http://www.ekhodonin.cz

Address: EK Hodonín, s.r.o.
Stavební 3
695 00 Hodonín
CZECH REPUBLIC

Fax: +420 518 321 040
Tel.: +420 518 321 911
E-mail: info@ekhodonin.cz